Volunteer Lake Assessment Program Individual Lake Reports

PHILLIPS POND, SANDOWN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	2,006	**Max. Depth (m):**	5.8	**Flushing Rate (yr^{-1}):**	3.7
Surface Area (Ac.):	85	**Mean Depth (m):**	3.1	**P Retention Coef:**	0.54
Shore Length (m):	2,600	**Volume (m^3):**	1,058,500	**Elevation (ft):**	212

TROPHIC CLASSIFICATION

Year	Trophic class
1977	MESOTROPHIC
1990	MESOTROPHIC

KNOWN EXOTIC SPECIES

Fanwort

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

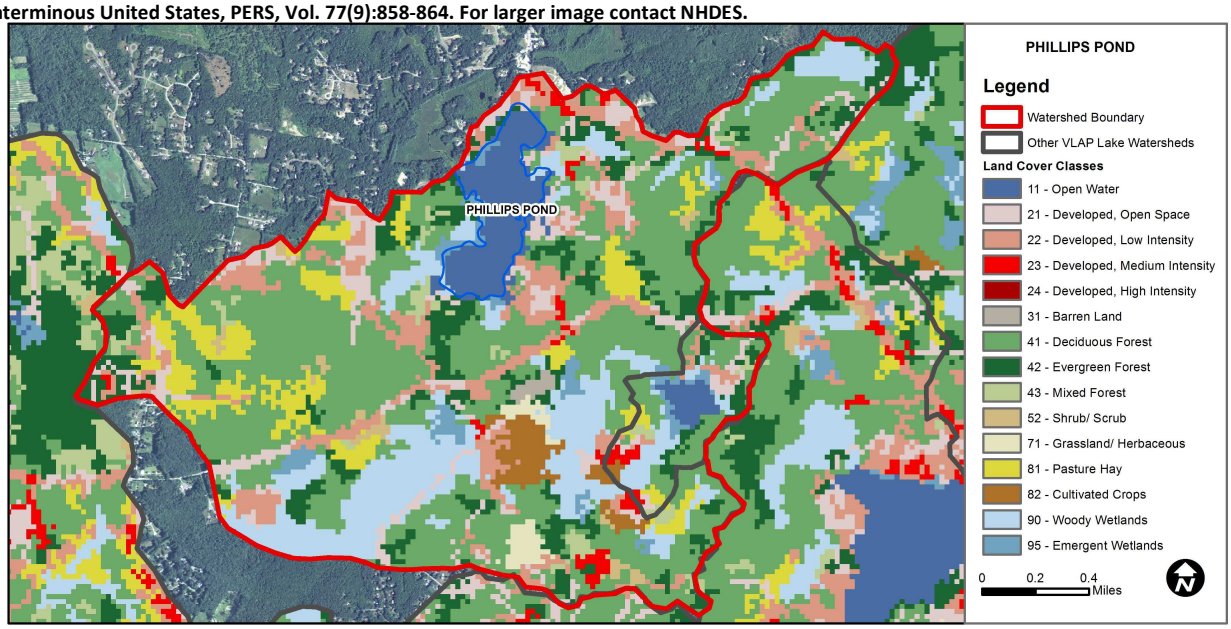
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

PHILLIPS POND - SEELEY TOWN BEACH	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
PHILLIPS POND - SEELEY TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.

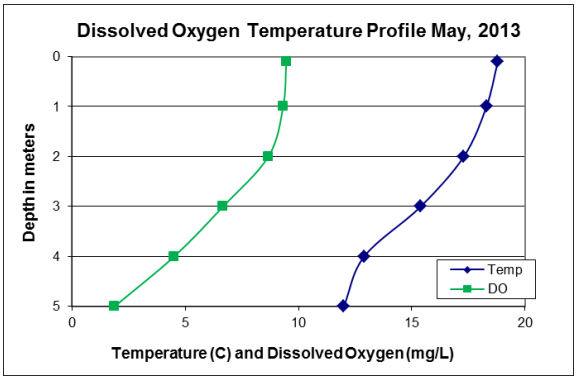


Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.42	Barren Land	0.36	Grassland/Herbaceous	0.98
Developed-Open Space	7.18	Deciduous Forest	38.38	Pasture Hay	6.56
Developed-Low Intensity	9.29	Evergreen Forest	9.97	Cultivated Crops	1.91
Developed-Medium Intensity	1.39	Mixed Forest	1.97	Woody Wetlands	13.57
Developed-High Intensity	0	Shrub-Scrub	0.97	Emergent Wetlands	2.13

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
PHILLIPS POND, SANDOWN, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll levels were elevated in May and June and much greater than the state median; however chlorophyll decreased to normal levels July through September. Significant early summer stormwater runoff from above average rainfall may have contributed nutrients necessary to cause the elevated algal growth. Visual inspection of historical data indicates stable chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and chloride were elevated and much greater than the state medians. Visual inspection of historical data indicates stable epilimnetic conductivity since monitoring began.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus was slightly elevated throughout the summer and greater than the state median. Visual inspection of historical data indicates relatively stable epilimnetic phosphorus since monitoring began. Hypolimnetic phosphorus was elevated in July and August when turbidity levels were elevated. Inlet and Metacomet Inlet phosphorus levels were elevated July through September when tributary flows were lower.
- **TRANSPARENCY:** Transparency was lower in 2013 and much less than the state median; likely due to the higher chlorophyll levels. Visual inspection of historical data indicates relatively stable transparency since monitoring began.
- **TURBIDITY:** Hypolimnetic turbidity was elevated in July and August potentially due to bottom sediment and/or the release of organic compounds from bottom sediments when dissolved oxygen levels deplete below 1.0 mg/L. Inlet turbidity was elevated in July, tributary flow was good and no recent rain events had occurred.
- **PH:** Epilimnetic pH was sufficient to support aquatic life, however hypolimnetic pH dipped below critical levels May through July. Visual inspection of historical data indicates relatively stable epilimnetic pH since monitoring began.
- **RECOMMENDED ACTIONS:** Phosphorus and chlorophyll levels are higher than desirable likely due to various non-point sources of pollution entering the pond through stormwater runoff. Educate watershed residents on ways to reduce stormwater runoff from their properties utilizing DES' "NH Homeowner's Guide to Stormwater Management". Educate residents on reducing fertilizer usage and using no phosphate fertilizers. Conductivity and chloride levels are elevated likely due to road salting practices. Encourage local road agents to obtain a Voluntary NH Salt Applicator license through the UNH Technology Transfer Center's (T2) Green SnowPro Certification Program.



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Table 1. 2013 Average Water Quality Data for PHILLIPS POND

Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Epilimnion	14.3	8.92	40	183.8	17	1.47	1.68	1.03	6.79
Hypolimnion				187.9	21			3.64	6.46
Inlet			31	193.5	28			1.26	6.58
Metacomet Inlet			37	170.6	21			0.53	6.04
Outlet			39	201.2	18			0.87	6.36

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	N/A	Ten consecutive years of data necessary.	Chlorophyll-a	N/A	Ten consecutive years of data necessary.
Conductivity	N/A	Ten consecutive years of data necessary.	Transparency	N/A	Ten consecutive years of data necessary.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary.